What is claimed is:

1. A structure for an optical packet for transmission over an optical network, comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof.

2. A structure according to claim 1, wherein the data in the payload has a higher data rate than the data rate of the second section of the packet header.

3. A structure according to claim 1, wherein the duration of the first section is equal to the duration of the second section.

4. A structure according to claim 1, wherein the duration of the second section is a multiple of the duration of the first section.

5. A structure according to claim 1, wherein the first and second sections are interleaved with each other to define the packet header.

6. A structure according to claim 5, wherein the first and second sections occupy alternate positions in the packet header.

7. A structure according to claim 1, wherein the first section precedes the second section.

8. An apparatus for reading data from a packet header of an optical packet transmitted over an optical network, the packet comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof, the

apparatus comprising a splitter for splitting or duplicating the packet, a delay element for delaying the first section of the split or duplicated packet to provide timing instants for interpreting the second section.

9. An apparatus according to claim 8, comprising:

an opto-electric conversion circuit for converting the optical packet into an electrical signal;

a decision circuit for interpreting the electrical signal by comparing the signal with a threshold level at timing instants, the decision circuit having a timing input for controlling the timing of the timing instants; and

a delay element,

wherein the delay element supplies a delayed version of the electrical signal to the timing input of the decision circuit, such that the first section of the header is used to determine the timing instants for interpretation of the second section of the header.

10. An apparatus according to claim 9, wherein the first and second sections are interleaved with each other to define the packet header and occupy alternate positions in the packet header, and wherein the delay element delays the electrical signal by an amount corresponding to approximately to an odd multiple of half of the bit period corresponding to the data rate.

11. An apparatus according to claim 9, wherein the first section precedes the second section, and wherein the delay element delays the electrical signal by an amount corresponding approximately to the duration of the first section.

12. An apparatus according to claim 9, comprising a plurality of decision circuits, a plurality of delay elements, a plurality of decision circuits and a splitter for duplicating or splitting the signal into a plurality of different versions, such that the first sections of the header of different versions of the packet are supplied to different delay elements and are delayed by a plurality of different amounts to allow different parts of the second section of the header to be interpreted by different decision circuits.

13. An apparatus according to claim 12, wherein the first section precedes the second section, and wherein the delay elements each delay the electrical signal by a different multiple of the duration of the first section.

14. A method of reading data from an optical packet transmitted over an optical network, the packet comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof, the method comprising:

splitting or copying the optical packet to provide at least two versions of the packet

delaying one version of the packet;

using the delayed packet to define the timing instants for interpretation of the packet, such that data in the first section of the packet header defines the timing instants for interpretation of the second section of the packet header.

15. A method of reading data from an optical packet transmitted over an optical network, the packet comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header or a multiple or sub-multiple thereof, the method comprising:

carrying out opto-electric conversion of the packet;

splitting or copying the electrical signal to provide at least two versions of the signal;

delaying the one version of the electrical signal; and

using the delayed signal to define the timing instants for interpretation of the electrical signal, such that data in the first section of the packet header defines the timing instants for interpretation of the electrical signal derived from the second section of the packet header.

16. A method according to claim 15, wherein the first and second sections are interleaved with each other to define the packet header and occupy alternate positions in the packet header, and wherein delaying the electrical signal comprises delaying the electrical signal by

an amount corresponding to approximately to an odd multiple of half of the bit period corresponding to the data rate.

17. A method according to claim 15, wherein the first section precedes the second section, and wherein delaying the electrical signal comprises delaying the electrical signal by an amount corresponding approximately to the duration of the first section.

18. A method according to claim 15, wherein delaying the electrical signal comprises delaying the signal by a number of different delays, thereby providing a plurality of sets of timing instants for interpretation of different parts of the electrical signal derived from the second section of the packet header.

19. A method according to claim 18, wherein the first section precedes the second section, and wherein the different delays each correspond to different integer multiples of the duration of the first section.

20. An optical communications network comprising a plurality of nodes, wherein data to be transmitted between nodes is encoded as packets, each packet comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header or a multiple or sub-multiple thereof, and wherein the packet headers include routing information, each node comprising an apparatus for reading the packet header which delays the first section to provide timing instants for interpreting the second section.

21. A network according to claim 20, wherein the apparatus for reading the packet header comprises:

an opto-electric conversion circuit for converting the optical packet into an electrical signal;

a splitter for duplicating or splitting the signal into a plurality of different versions;

a decision circuit for interpreting the electrical signal by comparing the signal with a

threshold level at timing instants, the decision circuit having a timing input for controlling the timing of the timing instants; and

a delay element,

wherein the delay element supplies a delayed version of the electrical signal to the timing input of the decision circuit, such that the first the section of the header is used to determine the timing instants for interpretation of the second section of the header.

22. A network according to claim 21, wherein the opto-electric conversion circuitry has a bandwidth lower than that required to read the packet payload.

23. A structure for an optical packet header comprising first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof.

24. An optical routing device for routing optical packets comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof, the routing device comprising:

apparatus for reading the packet header comprising a splitter for splitting or duplicating the packet, a delay element for delaying the first section of the split or duplicated packet to provide timing instants for interpreting the second section; and

a routing arrangement for routing the packet in dependence on the data in the second section.

25. An optical node for an optical communications network in which data is transmitted as optical packets comprising a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof, the node comprising:

apparatus for reading the packet header comprising a splitter for splitting or

duplicating the packet, a delay element for delaying the first section of the split or duplicated packet to provide timing instants for interpreting the second section.

26. An optical signal comprising a modulated optical carrier defining a packet structure having a packet header and a packet payload, the packet header preceding the packet payload, wherein the packet header comprises first and second sections, and wherein the first section comprises a series of clock pulses at the data rate of the second section of the packet header, or a multiple or sub-multiple thereof.